

MATERIALS FOR A FLORA OF TURKEY: XXVII

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ABSTRACT. The following new species are described from Turkey: *Cephalaria elmaliensis* Hub.-Mor. & Matthews, *C. hakkiarica* Matthews, *C. isaurica* Matthews, *C. lycia* Matthews, *Dipsacus cephalarioides* Matthews & Kupicha, *Potentilla anatolica* Peşmen, *Saxifraga artvinensis* Matthews and *Sedum hewittii* Chamberlain.

CRASSULACEAE

Sedum hewittii Chamberlain, sp. nov.

S. callichroi Boiss. affinis sed sepalis longioribus, 2.4 mm longis, et petalis in sicco sine nervis discoloris differt.

Herba annua erecta glabra, 3–5 cm alta. *Folia* teretia, anguste ovoidea vel lineares, 6–8 mm longa, calcarata. *Inflorescentia* laxa cymosa, 2–6-flora. *Flores* pentamera, breviter pedicellata. *Petala* in sicco alba nervis concoloris, circa 4 mm longa. *Sepala* obovata, obtusa, 2–4 mm longa. *Antherae* flavae. *Folliculi* glabri, erecti.

Turkey. B10 Ağrı: SW Ararat, on wet loam, 2750–3050 m, 1966, *Hewitt* 79 (holo. E).

Only known from the type gathering which may be depauperate. It does not however appear to be referable to any of the related annuals so far described.

Sedum hispanicum L., Sp. Pl. ed. 2: 618 (1762).

var. *planifolium* Chamberlain, var. nov.

Herba annua pluribus caulibus florentibus e baso orientibus; caules 4–5 cm longa. *Folia* caulina, lanceolata vel lineares, ut videtur in sicco plana, breviter calcarata, sparse glanduloso-pubescentia. *Inflorescentia* pluricymulosa, 10–20-flora. *Flores* hexamera, breviter pedicellata. *Sepala* lanceolata, c. 1 mm longa. *Petala* alba, rubro-nervosa, ovato-lanceolata, 4–5 mm longa. *Stamina* 10, antheris atropurpureis. *Stylus* c. 1 mm longus. *Folliculi* patentes, c. 3 mm longi, dense glanduloso-pilosi. *Floret* Julio.

Turkey. B2 Kutahya: Murat Dağ, above Gediz, above Kesik Söğüt, rocky slopes, 1900–2000 m, 5 vii 1962, *Davis & Coode*, *D.* 36839 (holo. E); *ibid.*, *D.* 36824 (E).

This variety, which is only known from a single mountain in Turkey appears to differ from var. *hispanicum* only in its apparently flat leaves. It is clearly a peripheral variant of this very polymorphic species.

DIPSACACEAE

Cephalaria elmaliensis Hub.-Mor. & Matthews, *sp. nov.*

C. stellipili Boiss. proxima sed foliis lanceolatis et bracteis receptaculi anguste ovatis vel lanceolatis pubescentibus et pilosis diversa.

Herba perennis gracilis pilis stellatis dense vestita. *Caules* ad 50 cm alti. *Folia* basalia lanceolata (cum petiolo) 15–23 cm longa, integra vel crenatodentata; folia caulina similia sed minora; folia superna lyrata, segmentis lateralibus minutis provisa. *Capitula* 1–2 cm diametro. *Corolla* 10–13 mm longa, extra dense pubescens, colore ignoto. *Bracteeae* involucri ovatae; bracteeae receptaculi anguste ovatae vel lanceolatae acuminatae ciliatae; omnes pubescentes pilosaeque. *Involucellum* c. 6 mm longum, pilosum, dentibus apicalibus 4 longis et 4 brevibus. *Calyx* cupuliformis setis ciliatis. Turkey. C2 Antalya: d. Elmali, Ak Da., 1700 m, 23 vi 1965, *F. Sorger* 65–27–5 (holo. Hb. Hub.-Mor.); Elmali, Keçova, *Fahri Demirdöğen* (ISTO 2577).

Related to *C. stellipilis* Boiss. from the Lebanon and E. Anatolia. The new species differs in its lanceolate leaves and in the narrowly ovate to lanceolate receptacular bracts which are pubescent and pilose.

I am indebted to Dr A. Huber-Morath for co-authorship of this species.

Cephalaria hakkiarica Matthews, *sp. nov.*

C. microcephalae Boiss. affinis sed bracteis receptaculi late ovatis vel late spathulatis, puberulis vel glabrescentibus differt.

Herba perennis c. 60 cm alta, caulibus minute puberulis sulcatis. *Folia* coriacea; folia basalia (cum petiolo) 15–20 cm longa simplicia lanceolata serrata vel plus minusve integra, minute puberula; folia superna pinnatisecta, 2–3 jugis segmentorum minorum lateralium provisa. *Capitula* 1–2 cm diametro, subradiantia. *Corolla* cremaea, 8–12 mm longa, extra breve villosa. *Bracteeae* involucri late ovatae obtusae; bracteeae receptaculi late ovatae vel late spathulatae acutae; omnes minute puberulae vel glabrescentes, stramineae. *Involucellum* (immaturum) pilosum, dentibus apicalibus 4 longis et 4 brevibus. *Calyx* cupuliformis setis ciliatis.

Turkey. C9 Hakkari: Cilo Da. above Diz Deresi, 2440 m, 7 viii 1954, *Davis & Polunin*, D. 23941 (holo. E; iso. K).

Related to *C. microcephala* Boiss. from SE Anatolia, Iraq and N & W Iran, but distinguished by its receptacular bracts being broadly ovate to broadly spathulate, puberulent to glabrescent.

Cephalaria isaurica Matthews, *sp. nov.*

C. uralensi (Murray) Roemer & Schultes affinis sed habitu \pm glabro et dentibus involucri tantum 4 differt.

Herba perennis c. 35 cm alta, caulibus subter minute puberulis, supra glabris. *Folia* coriacea glabra margine setoso integra; folia basalia simplicia ovata acuta; folia mediana (cum petiolo) 5–6 cm longa pinnata segmentis ovato-ellipticis; folia superna lanceolata. *Capitula* 1.5–2 cm diametro, radiantia. *Corolla* flava, 14–16 mm longa, extra pubescens. *Bracteeae* involucri

ovatae, obtusae pubescentes. *Bracteeae receptaculi* oblongo-ovatae acutae pubescentes. *Involucellum* (immaturum) dentibus 4 aequalibus. *Calyx* cupuliformis setis ciliatis.

Turkey. C4 Antalya: d. Alanya, Kargi çay between Durbanas and Derince De., slopes, 25 viii 1947, Davis 14468 (holo. E; iso. K).

Known only from type material. Related to *C. uralensis* (Murray) Roemer & Schultes from SE Europe, from which it differs in being \pm glabrous and having only 4 involucellar teeth.

***Cephalaria lycica* Matthews, sp. nov.**

C. microcephalae Boiss. affinis sed habitu procumbens, foliis inferioribus minoribus segmento terminali late elliptico vel obovato differt.

Herba perennis procumbens caudicibus lignosis brevissimis. *Caules* florentes 10–30 cm alti, glabri vel minute puberuli. *Folia* coriacea reticulato-rugosa; folia basalia (cum petiolo) 2–5 cm longa, simplicia vel pinnatisecta, segmento terminali late elliptico vel obovato, serrato vel crenato; folia superna pinnatisecta vel interdum elliptica; omnia puberula vel pubescentia. *Capitula* 0.5–1 cm diametro, radiantia. *Corolla* alba vel malvina, 7–12 mm longa, extra dense pubescens. *Bracteeae* involucri late ovatae obtusae puberulae; bracteeae receptaculi oblongo-spathulatae acutae puberulae ciliatae; omnes stramineae vel purpurascens. *Involucellum* 4–5 mm longum, parce pilosum dentibus apicalibus 4 longis et 4 brevibus. *Calyx* cupuliformis setis ciliatis.

Turkey. C2 Muğla: S side of Girdev Da., 1700–2200 m, 5 viii 1947, Davis 13857 (holo. E; iso. K); Sandras Da., 2100 m, vi–vii 1968, Quézel et al.; Sandras Da., nr. Gökçe ova, 1700 m, Davis 13527. C2 Antalya: d. Elmali, Bey Da., 1750 m, Khan, Prance & Ratcliffe 308.

The new species is related to *C. microcephala* Boiss. from SE Anatolia, Iraq and N & W Iran, but differs in being procumbent and in having the lower leaves smaller with a broadly elliptic to obovate terminal segment.

***Dipsacus cephalarioides* Matthews & Kupicha, sp. nov.**

Species distinctissimus, a *D. pilosa* foliis caulinis pinnatifidibus sessilibus, bracteis receptacularibus brevioribus, margine setosis, stramineis subula fusca (non bracteis ex toto viridibus) differt.

Herba annua vel biennis, erecta, caulibus ad 2 m altis parce aculeatis. *Folia* basalia ignota; folia caulina sessilia 4–9 cm longa, pinnatifida, margine costaque aculeatis, segmenta elliptica, segmentum terminale lateralibus multo majus. *Capitula* 1–1.75 cm diametro. *Bracteeae involucri* 4–5 mm longae, ovatae acuminatae setosae. *Bracteeae receptaculi* 4–5 mm longae, obovatae subulatae stramineae, ad marginem setosae, subula fusca. *Corolla* crenea, 6–8 mm longa, extra pubescens. *Involucellum* (immaturum) hirsutum, quadrangulare dentibus apicalibus 12, 4 longissimis angulis orientibus. *Calyx* cupuliformis margine ciliato.

Turkey. B8 Muş: plain 20 miles E of Muş, roadside, 30 viii 1954, Davis & Polunin, D. 24772 (holo. E; iso. BM).

Known only from the type material. This species might seem, at first sight, to belong to *Cephalaria*, but to some extent it stands between *Cephalaria* and *Dipsacus*. It has been described as a *Dipsacus*, however, because there are true prickles on the stems and the leaf margin and midrib, the involucre bracts are equal in length to the receptacular bracts and not shorter as in *Cephalaria*, and the involucre bears 12 apical teeth (*Cephalaria* has 0, 4 or 8 teeth). *D. cephalarioides* probably comes nearest to *D. pilosus* L. but differs markedly in its sessile pinnatifid cauline leaves, and shorter receptacular bracts which are straw-coloured with a dark brown tip and setae on the margin.

I wish to thank Frances Kupicha for co-authorship of this species.

ROSACEAE

Potentilla anatolica H. Peşmen, sp. nov. (Subgen. *Potentilla* Sect. *Persicae* (Th. Wolf) Juz.).

P. kurdicae Boiss. & Hohen. ex Boiss. valde affinis, sed petalis majoribus late obovatis emarginatis (non oblongo-spathulatis) differt. Facie *P. umbrosae* Steven ex Bieb. similis sed forma indumenti diversi recedit.

Herba perennis, basi herbacea. *Caudex* multiceps, fuscus, crassus, lignosus, squamosus. *Caules* floriferi erecti, (8-)15-65 cm alti, superne ramosi, pilis eglandulosis plerumque vix 0.5 mm longis patenter pubescentes. *Folia* radicalia et caulina inferiora digitata; petioli 3-25 cm longi, molliter pubescentes; foliola 5 vel rarius 7, late obovata vel oblonga, 10-50(-70) × 10-20 (-30) mm, basi cuneata, margine serrata, dentibus in utroque latere 4-7(-8), utrinque patenter pubescentes, foliola terminalia breviter petiolulata vel sessilia, saepe trilobata; folia caulina superiora breviter petiolata, saepe trifoliolata. *Stipulae* herbaceae, per $\frac{1}{2}$ longitudinis ad petiolum adnatae, ovatae vel lanceolatae, (5-)10-15 mm longae, integrae vel 2-3-dentatae. *Inflorescentia* laxae cymosae, multiflora; pedicelli fructiferi erecti, 5-40 mm longi, dense patenter pubescentes et sparsim glandulosi. *Calyx* extra dense glanduloso-pubescent; epicalycis segmenta elliptico-oblonga, 3-6 mm longa, obtusa; sepala ovato-lanceolata, 5-8 mm longa, acuta. *Petala* aurea, late obovata, 9-11 × 7-15 mm, apice conspicue emarginata. *Stamina* c. 20; filamenta 2.5-3(-4) mm longa; antherae cordatae vel oblongae, 1-1.5 mm longae. *Receptaculum* conicum, dense pilosum. *Achaenia* numerosa, reniformia, c. 15 mm longa, glabra, leviter carinata et rugulosa; stylus subterminalis, filiformis, 2-2.5 mm longus, basi incrassatus papillosus; stigma dilatatum, Floret Jun.-Aug.

Turkey. A9 Kars: mountains E of Kağızman, N side pass between Akçay and Cumaçay, 2350 m, marshy edge of lake, 17 vii 1966, *Davis* 46771. B6 Maraş: distr. Göksun, Binboga Da., in ravine on NE side of Işık Da., 1900 m, by stream, 16 vii 1952, *Davis*, *Dodds* & *Çetik*, *D.* 20099. B9 Van: distr. Çatak, Kavuşşahap Da., 2450 m, 22 vii 1954, *Davis* & *O. Polunin*, *D.* 23023 (holo. E); Kepir Da. (above Hoşap), 2600 m, by stream, 30 vii 1954, *Davis* & *O. Polunin*, *D.* 23322; Başkale-Van, Halanduran Da. c. 25 km from Başkale, 3000 m, damp ground beside stream, 31 viii 1956, *McNeill* 708. C9 Hakkari: Karadağ, 2750 m, nr. stream, 15 viii 1954, *Davis* & *O.*

Polumn, D. 24372; 10 km from Hakkari to Kaval (Piyannis), 2400 m, wet alpine pasture, 23 vi 1966, *Davis* 45420. C10 Hakkari: Sat Da., NW of Sat G., 2850 m, rocky igneous slopes, 28 vi 1966, *Davis* 45499 (*forma nana*).

The new species is closely related to *P. kurdica* Boiss. & Hohen. ex Boiss. (N Iraq, W Iran) from which it is distinguished by its much larger, obcordate (not oblong-spathulate) petals; the indumentum is usually more sparse, and the leaflets often smaller. It resembles *P. umbrosa* Steven ex Bieb. (Crimea, N Anatolia) in facies and petal shape, but the latter differs in its appressed-pilose to \pm sericeous indumentum, and crenate to crenate-serrate leaflets. The hairs of the new species are all short (mostly less than 0.5 mm, only a few scattered stem hairs being up to 1 mm long), whereas they are comparatively long (1.5–3 mm) in *P. umbrosa*.

SAXIFRAGACEAE

Saxifraga artvinensis Matthews, sp. nov. (Sect. *Kabschia* Engler).

S. juniperifoliae Adams affinis sed petalis albis, marginibus foliorum ciliatis et pedicellis longioribus differt.

Herba perennis caespitosa pulvinum densum formans. *Surculi* foliosi foliis dense imbricatis annorum praeteritorum persistentibus. *Folia* lineari-oblonga 5–9 mm longa, apiculata vel mucronulata glabra 1(–3)-foveolata, non calce incrustata, margine in dimidio inferiore ciliato. *Caules* florentes ad 4 cm alti, foliis lineari-oblongis sparsis, glabri 3–5-flori. *Pedicelli* 6–9 mm longi, flores excedentes. *Sepala* 2.5–3.5 mm longa, ovata glabra. *Petala* 4–5 mm longa, spathulata alba. *Stamina* exserta. *Ovarium* semi-inferum. *Capsula* ignota.

Turkey. A8 Çoruh: Tiryal Da., above Murgul, 2300 m, shady vertical igneous rocks, 23 vi 1957, *Davis & Hedge*, D. 29957 (holo. E); Kuru Kum Da., nr. Melo above Artvin, 2135 m, 30 vi 1962, *Apold, Cox & Hutchison* 135.

This species is allied to *S. juniperifolia* Adams from Bulgaria, NE Anatolia and Caucasia. It differs in its white (not yellow) flowers, its ciliate rather than denticulate leaf margins, and its longer pedicels.